NEW YORK STATE DEPARTMENT OF TRANSPORTATION MATERIALS BUREAU ALBANY, NY 12232 **MATERIALS METHOD**	MATERIALS METHOD: N.Y. 1.1 ISSUE DATE: September, 1986 Supersedes: MM N.Y. 1 dated 4/17/72
SUBJECT: QUALITY ASSURANCE PROCEDURE FOR ELASTOMERIC GASKET	
APPROVED: James J. Murphy JAMES J. MURPHY / DIRECTOR, MATERIALS BUREAU	CODE: 7.42-1-1.1

I. Scope

This method describes specific procedures for the quality assurance of elastomeric gasket material to be used with concrete pipe items.

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III. General Method

This method details the system used to assure the quality of elastomeric gasket material to function as a seal for the joints of concrete pipe items.

An Approved List of elastomeric gasket manufacturers will contain the name and location of Manufacturers who are approved to supply and certify materials destined to Department projects.

In order to be added to the Approved List, the Manufacturer must provide assurance to the Department of their ability to control the quality of production and test to determine conformance to ASTM C443. This will be evaluated by the comparison of test results determined from replicate samples submitted by the Manufacturer and the random selection of samples taken from a concrete pipe manufacturer's stockpile and tested for specification compliance.

The elastomeric gasket manufacturer shall supply the pipe manufacturer with a Certification indicating conformance to ASTM C443 for each size and type of gasket delivered. The pipe manufacturer is required to retain this Certification in his records for three years. This Certification shall be made available to the Department upon request during that time.

IV. Definitions

A. Manufacturer - A company actually engaged in the production of elastomeric gaskets at a given location.

B. Department - The New York State Department of Transportation.

C. Region or Regional Office - One of eleven subdivisions of the New York State Department of Transportation, under the direction of an individual entitled the Regional Director.

D. Materials Bureau - A facility of the New York State Department of Transportation which may be contacted by mailing to:

Director, Materials Bureau
New York State Department of Transportation
Building 7A - Room 200
1220 Washington Avenue
Albany, New York 12232

or by telephoning the Materials Administration Office of the Materials Bureau at (518) 457-5642.

E. Region Materials Engineer - A representative of the New York State Department of Transportation whose primary function is to assure the quality of materials used in construction in that Region.

F. Inspection Authority - An office designated by the Materials Bureau as responsible for inspection control on behalf of the Department at specific manufacturing locations. The office will be one of the following:
   1. The Department's Regional Materials office, supervised by the Materials Engineer.
   2. Agency Inspection, supervised by the Materials Bureau or its designee.

G. Plant Inspector or Inspector - An individual employed by the Inspection Authority to function on inspection assignments on behalf of the Department.

H. Project Inspector - An individual assigned by the Department's Project Engineer to function on inspection assignments at the project.

I. Concrete Pipe or Pipe - Terms used to refer to any or all of the following items: Non-Reinforced Concrete Pipe, Reinforced Concrete Pipe, Reinforced Concrete Elliptical Pipe, Porous Concrete Pipe Underdrain, Extra Strength Porous Concrete Pipe Underdrain, Reinforced Concrete Pipe End Sections, Reinforced Concrete Cattle Pass.

J. Elastomeric Gasket - An elastomeric material used to seal the joints of pipe.

K. Manufacturer's Certification - An official document, issued by the Manufacturer, to accompany each shipment of gasket to the pipe manufacturer, with a statement indicating the gasket shipped conforms to ASTM C443. The Certification shall be signed by an officer of the company having the legal authority to bind the company.

L. Approved Lists - Lists of materials and equipment published, in the spring and fall of each calendar year, for use on New York State Department of Transportation projects. These lists are updated throughout the year by the Materials Bureau.

M. Approved List of "Elastomeric Gasket Manufacturers" - This list, included in the Approved Lists, contains the name and location of Manufacturers who are approved to supply and certify elastomeric gasket material destined to Department projects.

N. Forms - The following forms are published and issued by the Department for use by the Materials Bureau and Inspection Authorities.

1. BR240, Sample and Acceptance Transmittal - This form is used to identify the monitor sample of gasket, randomly selected by the Inspector. Subsequent to the completion of testing and evaluation, the form is validated by the Materials Bureau and conveys the acceptance action to the Inspector.
2. BR241, Transmittal Envelope - This is a heavy duty envelope used to contain the Form BR240.

V. Evidence of Acceptability - The procedures used by the Department to determine the acceptability of gasket at the pipe manufacturing plant and project location.

A. Elastomeric Gasket at the pipe manufacturing plant

1. Appearance of the Manufacturer's name, location and trademark on the Department's Approved List of Elastomeric Gasket Manufacturers.
2. Appearance of the Manufacturer's name or trademark on each gasket.
3. A Certification on file with the pipe manufacturer indicating conformance to ASTM C443.

B. Elastomeric Gasket at the project location

1. Appearance of the Manufacturer's name and location on the Department's Approved List of Elastomeric Gasket Manufacturers.
2. Appearance of the Manufacturer's name or trademark on each gasket.

VI. Procedure For Elastomeric Gasket Manufacturer's Addition To the Approved List - The list is titled, "Elastomeric Gasket Manufacturers"

Responsibility	Action
Manufacturer	A. Makes a written request to the Materials Bureau to be placed on the Department's Approved List of Elastomeric Gasket Manufacturers. This request shall contain the following: 1. Name and location of Manufacturer. 2. A brief description of the manufacturing facilities.

Responsibility	Action
Manufacturer	3. A description of the quality control procedures including the tests performed, frequency of performance and the test methods utilized. 4. Is the testing performed at the manufacturing location, a central laboratory some distance from the manufacturing site or a combination of each? Supply appropriate details. 5. The name, address and telephone number of the person who will coordinate with the Materials Bureau.
	B. Submits a six foot continuous length of elastomeric joint material with the above written request. A replicate sample (cut adjacent to the six foot length) shall be tested by the Manufacturer.
	C. Submits the test results of the replicate sample and indicates whether it conforms to ASTM C443.
Materials Bureau	D. Reviews the request to determine if sufficient quality control is provided by the Manufacturer to assure specification compliance of elastomeric gaskets.
	E. Tests and evaluates the sample submitted and compares the test results to those received by the Manufacturer.
	F. Discusses the results of this testing with the Manufacturer's representative dealing with quality control.
	G. Determines appropriate action based upon available information. This may include one or more of the following: 1. Add the Manufacturer's name to the Approved List.

Responsibility	Action
Materials Bureau	2. Request additional samples with test results. 3. Visit the manufacturing facility to evaluate quality control and testing.
	H. Notifies the Manufacturer of Department action.
Manufacturers Appearing On Approved List	I. Provides the Materials Bureau with an annual update of quality control procedures. This update shall be received by April 1 of each year and revised as necessary.
Materials Bureau	J. Monitors the quality of elastomeric gaskets by randomly selecting samples of gasket at concrete pipe plants. Testing will be performed and the results evaluated to determine the Manufacturer's ability to maintain Approved List status.

VII. Monitor Sampling

The quality of elastomeric gaskets supplied to the Department by concrete pipe manufacturers will occasionally be sampled and tested to verify the effectiveness of the elastomeric gasket manufacturer's quality control and ability to supply based upon Certification.

Responsibility	Action
Inspection Authority	A. Assigns a Plant Inspector to obtain samples of elastomeric gasket at each pipe manufacturing facility. A sample shall be selected at the start of pipe production each calendar year, and twice more during the year.
	B. Maintains a record of the size, type and Manufacturer of the gasket sampled. Whenever possible, the Plant Inspector should be instructed to sample gasket of a different size, type and Manufacturer each time they sample.

Responsibility	Action
Plant Inspector	C. Randomly selects a sample. NOTE: A sample shall consist of 2 gaskets for 24" diameter pipe or less, and 1 gasket for pipe diameters greater than 24". A random number table is included in Appendix 2.
	D. Obtains from the Manufacturer the Certification representing the shipment of gasket sampled.
	E. Verifies the following: 1. The gasket manufacturer's name appears on the Department's Approved List. 2. The gasket manufacturer's name or trademark appears on the gaskets. 3. The Certification indicates conformance to ASTM C443 and is signed by a representative of the company.
	F. Prepares a BR240, Sample and Acceptance Transmittal. An example of a properly completed BR240 is detailed in Appendix 1.
	G. Places the Certification and the BR240 in the BR241 transmittal envelope, attaches it to the packaged gasket and transmits it to the Materials Bureau.
Materials Bureau	H. Tests and evaluates the quality of the samples.
	I. Reports the results to the Inspection Authority.
	J. Determines the appropriate action. If the results are satisfactory, no further action is required. If they are unacceptable, the action may include one or more of the following: 1. Discuss the results with the gasket and pipe manufacturers. 2. Evaluate additional material. 3. Determine the extent of the problem and reevaluate the acceptability of the gaskets supplied to pipe manufacturers.

Responsibility	Action
Materials Bureau	4. Evaluate the ability of the gasket manufacturer to provide satisfactory quality control to remain on the Approved List.
Inspection Authority	K. Reports results of testing to the pipe manufacturer.

VIII. Gasket Supply to Department Projects

Responsibility	Action
Concrete Pipe Manufacturer	A. Orders elastomeric gasket from a Manufacturer on the Approved List. The size and shape of the gasket ordered shall conform to that shown on the Department approved pipe drawings.
	B. Receives the gasket with the Certification from the gasket manufacturer and verifies the following: 1. The cross section and dimensions conform to these detailed on the Department approved pipe drawings. 2. The individual gaskets shall be indelibly marked with the Manufacturer's name or trademark. 3. A Certification, signed by a representative of the gasket manufacturer, was received with the shipment and indicates conformance to ASTM C443.
	C. Ships the gasket to Department projects.
Project Inspector	D. Evaluates the gasket received to assure that all are indelibly marked with the Manufacturer's name or trademark.
	E. Verifies the name of the gasket manufacturer appears on the Department's Approved List.

Appendix 1

Example of Properly Completed BR240
Sample and Acceptance Transmittal

BR-240a (11/74) SAMPLE AND ACCEPTANCE TRANSMITTAL
NYSDoT MATERIALS BUREAU

SERIAL NO.	DATE REC'D.	TEST NO.

TO:

'Material Represented by the Sample Described Below Was _____

ON _____ For _____

(Action Official Only When Validated Below By The Materials Bureau)

UPPER PORTION FOR MATERIALS BUREAU ONLY — INSPECTOR TO COMPLETE ALL APPLICABLE BOXES BELOW

16. ADDITIONAL INFO. (SEE INSTRUCTIONS ON REAR)
MONITOR SAMPLE
Cert. Attached
2-18" gasket

1. MATERIAL: 18" Elastomeric Gasket
2. ITEM NO.: 706-02
3. DATE SAMPLED: 8/25/86
4. CONTRACT NO.:
5. SUPPLIER AND LOCATION: A-1 Concrete Co., Bayshore, NY
6. QUANTITY IN LOT:
7. LOT NO.:
8. MANUFACTURER AND LOCATION (IF DIFFERENT THAN ABOVE): Super Gasket Corp., Cleve., OH
9. BATCH NO.:
10. DATE OF MFGR.:
11. SAMPLED AT: ☐ MILL ☒ PLANT ☐ JOB
12. TYPE: ☐ CONTROL SAMPLE ☐ INFO. SAMPLE ☐ BPR SAMPLE ☐ APPROVED LIST MAT ☒ CERTIFIED MAT
13. SAMPLED FROM: Certified Stock
14. SAMPLED BY (INCL DIST NO OR AGENCY): John Q. Inspector
15. CONTRACTOR AND PROJECT LOCATION:
MATERIALS BUREAU VALIDATION: Region 10

RETAIN PINK COPY FOR YOUR RECORDS
FORWARD ALL OTHERS TO MATERIALS BUREAU

Appendix 2

INSTRUCTIONS:

1. Determine number of digits to be used that correspond with number of units to be sampled. (e.g. 500 units - use last three digits of each number in the table - 9685)

2. Starting anywhere in the table, select the units to be sampled by reading the numbers consectively that do not exceed total number of units in the lot.

(EXAMPLE - 500 units to be sampled with 5 samples needed. Presume you start on line 27, column 3 (#685). Since 685 is larger than the number of units in lot, go down col. 3 selecting numbers 64, 32, 187, 37 and 110. When counting units in lot, those units corresponding to these numbers would be sampled.)

RANDOM NUMBER TABLE

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	1305	1189	5731	3968	5606	5084	8947	3897	1636	7810
2.	0422	2431	0649	8085	5053	4722	6598	5044	9040	5121
3.	6597	2022	6168	5060	8656	6733	6364	7649	1871	4328
4.	7965	6541	5645	6243	7658	6903	9911	5740	7824	8520
5.	7695	6937	0406	8894	0441	8135	9797	7285	5905	9539
6.	5160	7851	8464	6789	3938	4197	5511	0407	9239	2232
7.	2961	0551	0539	8288	7478	7565	5581	5771	5442	8761
8.	1428	4183	4312	5445	4854	9157	9158	5218	1464	3634
9.	3666	5642	4539	1561	7849	7520	2547	0756	1206	2033
10.	6543	6799	7454	9052	6689	1946	2574	9386	0304	7945
11.	9975	3080	7423	3175	9377	6951	6591	8287	8994	5532
12.	4866	0956	7545	7723	8085	4948	2228	9583	4415	7065
13.	8239	7068	6694	5168	3117	1586	0237	6160	9585	1133
14.	8722	9191	3386	3443	0434	4586	4150	1224	6204	0937
15.	1330	9120	8785	8382	2929	7089	3109	6742	2468	7025
16.	2296	2952	4764	9070	5356	9192	4012	0618	2219	1109
17.	3582	7052	3132	4519	9250	2486	0830	8472	2160	7046
18.	5872	9207	7222	6494	8973	3545	6957	8490	5264	9821
19.	1134	6324	6201	3792	5651	0538	4676	2064	0584	7996
20.	1403	4497	7390	8503	8239	4236	8022	2914	4368	4529
21.	3393	7025	3381	3553	2128	1021	8353	6413	5161	8553
22.	1137	7896	3602	0060	7850	7626	0854	6565	4260	6220
23.	7437	5198	8772	6927	8527	6851	2709	5992	7383	1071
24.	8414	8820	3917	7238	9821	6073	6658	1280	9643	7761
25.	8398	5224	2749	7311	5740	9771	7826	9533	3800	4553
26.	0995	8935	2939	3092	2496	0359	0318	4697	7181	4035
27.	6657	0755	9685	4017	6581	7292	5643	5064	1142	1297
28.	8875	8369	7868	0190	9278	1709	4253	9346	4335	3769
29.	8399	6702	0586	6428	7985	2979	4513	1970	1989	3105
30.	6703	1024	2064	0393	6815	8502	1375	4171	6970	1201
31.	4730	1653	9032	9855	0957	7366	0325	5178	7959	5371
32.	8400	6834	3187	8688	1079	1480	6776	9888	7585	9998
33.	3647	8002	6726	0877	4552	3238	7542	7804	3933	9475
34.	6789	5197	8037	2354	9262	5497	0005	3986	1767	7981
35.	2630	2721	2810	2185	6323	5679	4931	8336	6662	3566
36.	1374	8625	1644	3342	1587	0762	6057	8011	2666	3759
37.	1572	7625	9110	4409	0239	7059	3415	5537	2250	7292
38.	9678	2877	7579	4935	0449	8119	6969	5383	1717	6719
39.	0882	6781	3538	4090	3092	2365	6001	3446	9985	6007
40.	0006	4205	2389	4365	1981	8158	7784	5256	3842	5603
41.	4611	9861	7916	9305	2074	9462	0254	4827	9198	3974
42.	1093	3784	4190	6332	1175	8599	9735	8584	6581	7194
43.	3374	3545	6865	8819	3342	1676	2264	6014	5012	2453
44.	3650	9676	1436	4374	4716	5548	8276	6235	6742	2154
45.	7292	5749	7977	7602	9205	3599	3880	9537	4423	2330
46.	2353	8319	2850	4026	3027	1708	3518	7034	7132	6903
47.	1094	2009	8919	5576	7283	4982	9642	7235	8167	3366
48.	0568	4002	0587	7165	1094	2006	7471	0940	4366	9554
49.	5606	4070	5233	4339	6543	6695	5799	5821	3953	9453
50.	8285	7537	1181	2300	5294	6892	1427	3372	1952	3023

From D. B. Owen's Handbook of Statistical Tables, 1962, Addison-Wesley, Reading, Mass., courtesy of the U. S. Atomic Energy Commission.

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